

**REMARKS**

Upon entry of the instant amendment, claims 1-5 and 7-31 will remain pending in the present application. In the present Amendment, claims 1, 28 and 29 have been amended. Also, claim 31 has been added. Claim 6 has been canceled. Further, claims 5, 11-13, 16, 17, 19-22, 24, and 27 stand withdrawn from consideration.

No new matter has been added by way of these amendments, because each amendment is supported by the present specification. For example, the amendment to claim 1 finds supports at claim 6, which has been canceled, and the phrase “air bag inflator” at page 1, lines 7-8 of the instant specification. Claim 28 has been amended so that this claim will depend from claim 1 instead of claim 6, since claim 6 has been canceled. Claim 29 has been also amended based on the phrase “air bag inflator” at page 1, lines 7-8 of the instant specification, respectively. Claim 31 has been also amended based on claims 1 and 6 and the phrase “air bag inflator” at page 1, lines 7-8 of the instant specification.

Further, the instant amendment does not raise substantial new issues for the Examiner’s consideration and require no further search on the Examiner’s part. At the same time, the instant amendments put the pending claims in condition for allowance and into a more proper format for issuance in a United States patent, by overcoming all outstanding rejections and objections of record.

Based upon the above considerations, entry of the present amendment is respectfully requested.

In view of the following remarks, Applicants respectfully request that the Examiner withdraw all rejections and allow the currently pending claims.

***Rejection under 35 U.S.C. §112, Second Paragraph***

At page 2 of the outstanding Office Action, claims 29 and 30 have been rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicants traverse this rejection, and respectfully request reconsideration and withdrawal thereof.

In the Office Action, the Examiner asserts that claim 29 recites “consisting essentially of” as its claim scope but includes optional ingredients, and that since this claim scope is closed ended, they cannot be optional ingredients.

However, the transitional phrase “consisting essentially of” is not close ended as asserted by the Examiner. Instead, this transitional phrase is partially open-ended (or partially closed).

Thus, the recitation of an optional ingredient is a part of the invention. Further, U.S. case law states that unrecited ingredients cannot “materially affect the basic and novel properties” of the claimed invention. The disputed claim language pertains to recited, though optional, ingredients.

Furthermore, there is a U.S. case law<sup>1</sup> to show that a claim can properly recite an optional ingredient when using the transitional phrase “consisting essentially of.” The *PPG Indus.* case defines the meaning of “consisting essentially of” as:

*“By using the term ‘consisting essentially of,’ the drafter signals that the invention necessarily includes the listed ingredients and is open to unlisted ingredients that do not materially affect the basic and novel properties of the invention. A ‘consisting essentially of’ claim occupies a middle ground between closed claims that are written in a ‘consisting of’ format and fully open claims that are drafted in a ‘comprising’ format.”<sup>2</sup> (Our emphasis added).*

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<sup>1</sup> *PPG Industries Inc. v. Guardian Industries Corp.*, 48 USPQ2d 1351 (Fed. Cir. 1998).

<sup>2</sup> *PPG Industries*, 48 USPQ2d at 1354.

Further, in *PPG Indus.*, the disputed claim reads:

1. A green tinted, ultraviolet absorbing glass having a base glass composition consisting essentially of:

SiO <sub>2</sub>	68-75 weight %
Na <sub>2</sub> O	10-20
CaO	5-15
MgO	0-5
Al <sub>2</sub> O <sub>3</sub>	0-5
K <sub>2</sub> O	0-5

and a colorant portion consisting essentially of:

CeO <sub>2</sub>	Less than 0.5 weight %
Total iron (as Fe <sub>2</sub> O <sub>3</sub> )	Greater than 0.85 weight %
FeO/total iron	Less than 0.275.

As can be understood from this explanation, the content of some of the oxides is 0%, or are optional ingredients. Similarly, it is also clear that the invention recited in claims 29 and 30 are definite, respectively.

Accordingly, Applicants respectfully request that this rejection be withdrawn.

Further, please note that regarding claims 29 and 30, all outstanding rejections have been overcome, and thus at least these claims have been put in condition for allowance.

***Rejections under 35 U.S.C. § 102(b)***

First, claims 1-4, 6, 8-10, 23, 25-26, and 28-30 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Zeuner '537 (U.S. Patent No. 6,132,537; see paragraph 3 of the Office Action).

Next, claims 1-4, 6-10, 23, 25-26, and 28-30 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Scheffee ‘571 (U.S. Patent No. 5,861,571; see paragraph 4 of the Office Action).

Finally, claims 1-4 and 7-8 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Blount ‘515 (U.S. Patent No. 6,054,515; see paragraph 5 of the Office Action).

Applicants respectfully traverse, and reconsideration and withdrawal of these rejections are respectfully requested.

Please note, in the instant amendment, claim 1 has been amended by incorporating the features of claim 6 (i.e., “Component (b) is at least one selected from the group consisting of basic copper nitrate, basic cobalt nitrate, basic zinc nitrate and basic manganese nitrate”). Thus, upon entry of the instant amendment, anticipation rejection of paragraph 5 of the Office Action (i.e., rejection of claims 1-4 and 7-8 over Blount ‘515) has been overcome.

Accordingly, the following remarks focus on the rejections of paragraphs 3-4 of the Office Action (i.e., anticipation rejection over Zeuner ‘537 or Scheffee ‘571), below.

*Distinctions over Zeuner ‘537*

The Examiner refers Applicants to column 2, lines 1-20 and 53-56 and claim 1 of the cited Zeuner ‘537 reference. Further, in paragraph 12, the Examiner states that each of the Zeuner ‘537 (and Scheffee ‘571) disclose(s) melamine cyanurate as instantly claimed.

However, Zeuner ‘537 fails to disclose or suggest the instantly claimed “melamine cyanurate or a mixture of melamine cyanurate and a nitrogen-containing organic compound as a fuel in an amount of 10 to 60% by mass.” Instead, Zeuner ‘537 merely discloses melamine,

cyanuric acid, and its claim 1 (at column 5) discloses the “20-60%” or “95 to 5% by weight of a heterocyclic organic acid,” but without referring to a specific amount or range of melamine cyanurate.

Thus, the Zeuner ‘537 reference fails to disclose or suggest the feature of the present invention “melamine cyanurate or a mixture of melamine cyanurate and a nitrogen-containing organic compound as a fuel in an amount of 10 to 60% by mass,” as recited in claim 1.

The Federal Circuit reiterated what the test for anticipation involves: “The single reference must describe and enable the claimed invention, including all claim limitations, with sufficient clarity and detail to establish that the subject matter already existed in the prior art and that its existence was recognized by persons of ordinary skill in the field of the invention.” *See Elan Pharmaceuticals Inc. v. Mayo Foundation for Medical Education and Research*, 64 USPQ2d 1292, 1296 (Fed. Cir. 2002) (citing *Crown Operations International, Ltd. v. Solutia Inc.*, 289 F.3d 1367, 1375, 62 USPQ2d 1917, 1921 (Fed. Cir. 2002)). Here, there is no sufficient clarity and detail for one of skill in the art to arrive at the instantly claimed the specific amount of melamine cyanurate or a mixture thereof based on the Zeuner ‘537 disclosure. In this regard, anticipation is not established if it is necessary to pick, choose and combine various portions of the disclosure, not directly related to each other by teachings of reference, in order to find that anticipation claim reads on that reference.

Accordingly, the rejection in view of Zeuner ‘537 has been overcome since the cited reference fails to disclose or suggest at least one feature of the present invention. Reconsideration and withdrawal of this rejection are respectfully requested.

*Distinctions over Scheffee '571*

The Examiner refers Applicants to the melamine, cyanuric acid derivative, cellulose binders and hydroxides disclosed at column 4 of Scheffee '571. Further, the Examiner also refers to "ammonium perchlorate" of Scheffee '571, which appears at column 3, line 39 of Scheffee '571.

However, these parts of Scheffee '571 do not equate to the feature of the instantly claimed melamine cyanurate (MC). Also, the reference to "and the like" at line 30 of column 4 of Scheffee '571 refers to other like ingredients of the list given at column 4, starting at line 27, but not to the instantly claimed MC salt.

Further, the Scheffee '571 reference fails to disclose or suggest the feature of the present invention that Component (b) "is at least one oxygen-containing oxidant selected from the group consisting of basic copper nitrate, basic cobalt nitrate, basic zinc nitrate and basic manganese nitrate," as recited in claim 1.

Accordingly, because "a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference," the cited Scheffee '571 reference cannot be a basis for a rejection under § 102(b). *See Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

Thus, because of the lack of disclosure of all features as instantly claimed, the rejection in view of Scheffee '571 is overcome. Reconsideration and withdrawal are respectfully requested.

Based on the above explanation, reconsideration and withdrawal of this rejection under 35 U.S.C. § 102(b) are respectfully requested.

***Rejections under 35 U.S.C. § 103(a)***

Claims 7 and 14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Zeuner '537 in view of Zhou '369 (U.S. Patent No. 6,468,369) or Matsuda '767 (U.S. Patent No. 5,780,767) (see paragraph 6 of the Office Action).

Additionally, claim 18 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Zeuner '537 in view of Zhou '369 or Matsuda '767 (U.S. Patent No. 5,780,767) and further in view of Hinshaw *et al.* '703 (U.S. Patent No. 5,970,703) (see paragraph 7 of the Office Action).

Further, claims 1-4, 6-10, 14, 23, and 25-26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wu '562 (U.S. Patent No. 6,505,562) in view of Taylor *et al.* '147 (U.S. Patent No. 6,096,147) (see paragraph 8 of the Office Action).

In addition, claim 18 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Wu '562 in view of Taylor *et al.* '147 as applied above and further in view of Hinshaw *et al.* '703 (see paragraph 9 of the Office Action).

Also, claims 1-4, 6-10, 14, 23 and 25-26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Taylor *et al.* '147 in view of Khandhadia *et al.* '505 (U.S. Patent No. 6,210,505) (see paragraph 10 of the Office Action).

Finally, claim 18 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Taylor *et al.* '147 in view of Khandhadia *et al.* '505 as applied above, and further in view of Hinshaw *et al.* '703 (see paragraph 11 of the Office Action).

Applicants respectfully traverse. Overall, Applicants do not concede that a *prima facie* case of obviousness has been established with respect to any of the rejections.

Please note, in the instant amendment, claim 1 has been amended by incorporating the features of claim 6 as discussed above.

Thus, upon entry of the instant amendment, rejections of paragraphs 6-7, 9, and 11 of the Office Action have been overcome.

Accordingly, the following remarks focus on and discuss the rejections of paragraphs **8** and **10** of the Office Action, below.

*Distinctions over Wu '562 and Taylor et al. '147 (paragraph 8 of the Office Action)*

The cited Wu '562 reference discloses a melamine polymer or resin (see, e.g., column 4, lines 13+), but this disclosure does not equate to disclosure of the instantly claimed melamine cyanurate monomer. Taylor '147 is cited for its disclosure of basic copper nitrate (BCN).

Accordingly, this rejection has been instantly overcome since the cited combination of references does not disclose all instantly claimed features (e.g., the MC monomer). *In re Vaeck, supra*. Withdrawal of this rejection is respectfully requested.

Further, the requisite motivation is lacking. By using MC, the present invention unexpectedly achieves superior ignition and combustion properties.

However, when using the melamine polymer of Wu '562, inferior ignition and combustion are the results. In fact, when combining the melamine polymer of Wu '562 with BCN, even worse results are achieved. Applicants note that it will take several seconds to several tens of seconds for a resin that includes a melamine compound or a phosphoric ester to start burning. This is contrary to the present invention that will burn out for a relatively short time (e.g., several to 150 milliseconds to generate gas in amount enough to inflate the air bag).

Thus, the combination of the melamine polymer of Wu '562 with BCN will not be useful for an air bag inflator in which a sufficient gas is required in several milliseconds to inflate an air bag and restrain the driver or passenger. In this regard, a cited reference must suggest the desirability of the modification if the reference is cited against the claimed invention. *In re Brouwer*, 37 USPQ2d 1663, 1666 (Fed. Cir. 1995). However, the cited Wu '562 reference does not suggest any advantage to be gained by making the Examiner's proposed combination. Thus, even initially referring to Wu '562 is improper as this reference describes a melamine polymer and not the monomer salt.

Further, the reference to column 5, lines 1-30 of Taylor '147 is also improper, as is the combination of this reference with Wu '562. The cited Taylor '147 reference does describe BCN as well as carboxymethyl cellulose (CMC) and other ingredients at column 5, lines 1-30. However, carboxymethyl cellulose is not only insoluble in water, it is different from sodium carboxymethyl cellulose in the type of material and properties thereof. Applicants note CMCNa is cited in Wu '562, wherein CMC is cited in Taylor '147. As opposed to CMC, CMCNa is inherently soluble in water. Thus, Applicants respectfully traverse the conclusions in the Office Action at page 5, lines 1-7, as Taylor '147 is being improperly used and combined with the Wu '562 disclosure. The two references are even inconsistent with one another (CMC v. CMCNa). Even if the disclosures could be combined (which Applicants argue is not proper), employing the BCN and insoluble CMC of Taylor '147 into the Wu '562 melamine polymer-containing composition would result in different composition from what is instantly claimed. Such a proposed composition would not even include the MC monomer since the primary reference does not even disclose the monomer. Therefore, the requisite reasonable expectation of success

is lacking given the different properties between the cited carboxymethyl cellulose and sodium carboxymethyl cellulose, and how Wu ‘562 uses a different melamine compound. *In re Vaeck; supra.*

Further, regarding to amount of Component (b) (i.e., basic copper nitrate, basic cobalt nitrate, basic zinc nitrate, or basic manganese nitrate), claim 3 recites the limitation of “the content of Component (b) is 40 to 90% by mass.” In this regard, even if Taylor ‘147 reference disclose basic copper nitrate (BCN), the cited references fail to disclose or suggest the specific amount of the specific nitrate (i.e., 40 to 90% by mass).

Thus, regarding the present invention of claim 3, a *prima facie* case of obviousness is not established even if the cited references (i.e., Wu ‘562 and Taylor ‘147) are combined since none of the cited references disclose or suggest the specific content of Component (b) (i.e., 40 to 90% by mass), which is recited in claim 3. Likewise, it follows that a person having ordinary skill in the art would not be motivated by any of the teachings of the cited references to arrive at the present invention of claim 3.

Accordingly, based on the above explanation, withdrawal of this rejection in view of the combination of Wu ‘562 and Taylor ‘147 is respectfully requested.

*Distinctions over Taylor ‘147 and Khandhadia ‘505 (paragraph 10 of the Office Action)*

As the Office Action acknowledges at line 5 at paragraph 10 on page 5 of the Office Action, Taylor ‘147, *inter alia*, does not disclose the instantly claimed component (a).

Further, Khandhadia ‘505 also fails to disclose or suggest melamine cyanurate. For example, column 4, line 55 of Khandhadia ‘505 refers to “melamine,” but not “melamine

cyanurate.” Furthermore, regarding “melamine,” there is merely a large laundry list of possible fuel components at this part of the Khandhadia ‘505 reference at column 4, lines 36-55.

Thus, the Khandhadia ‘505 reference fails to specifically disclose or suggest “melamine cyanurate.”

Thus, a *prima facie* case of obviousness is not established even if the cited references are combined since none of the cited references disclose or suggest the feature of “(a) melamine cyanurate or a mixture of melamine cyanurate and a nitrogen-containing organic compound as a fuel in an amount of 10 to 60% by mass,” which is recited in claim 1.

Further, Khandhadia ‘505 certainly does not recognize any advantage in using a particular fuel, especially with regard to what is instantly claimed.

Accordingly, these rejections have been overcome for this reason alone.

Furthermore, regarding to amount of Component (b) (i.e., basic copper nitrate, basic cobalt nitrate, basic zinc nitrate, or basic manganese nitrate), claim 3 recites the feature of “the content of Component (b) is 40 to 90% by mass.” In this regard, both Taylor ‘147 and Khandhadia ‘505 fail to disclose or suggest the specific amount of the specific nitrate (i.e., 40 to 90% by mass).

Thus, regarding the present invention of claim 3, a *prima facie* case of obviousness is not established even if the cited references (i.e., Taylor ‘147 and Khandhadia ‘505) are combined since none of the cited references disclose or suggest the features of the present invention (i.e., “the content of Component (b) is 40 to 90% by mass” and “melamine cyanurate”), which are recited in claim 3. Likewise, it follows that a person having ordinary skill in the art would not be

motivated by any of the teachings of the cited references to arrive at the present invention of claim 3.

As described above, the requirements for a *prima facie* case of obviousness have not been satisfied for either rejection as stated in paragraphs 10 of the Office Action. Accordingly, withdrawal of both rejections is respectfully requested.

Unexpected Results

Applicants respectfully submit that the present invention has achieved unexpected results, whereby such results rebut any asserted *prima facie* case of obviousness (whether based on any reference cited herein or combinations thereof). See *In re Corkill*, 711 F.2d 1496, 226 USPQ (BNA) 1005 (Fed. Cir. 1985); see also *In re Papesch*, 315 F.2d 381, 137 USPQ (BNA) 43 (CCPA 1963); *In re Wiechert*, 370 F.2d 927, 152 USPQ (BNA) 247 (CCPA 1967). As stated in M.P.E.P. § 2144.09 (see section entitled “*Prima Facie* Case Rebuttable By Evidence of Superior or Unexpected Results”), any rejection under 35 U.S.C. § 103(a) may be rebutted by a sufficient showing of unexpected results for the present invention.

The present invention is directed to a gas generating composition comprising at least melamine cyanurate or a mixture of melamine cyanurate and a nitrogen-containing organic compound as a fuel component (a). By using melamine cyanurate as a fuel, the present invention unexpectedly achieves superior ignition and combustion properties. More specifically, the presently claimed composition has the unexpected advantages of (1) the content of ammonium group decreases by incorporating the cyanurate group and eventually a generated amount of ammonia decreases upon combustion; and (2) using MC is safe wherein isocyanuric acid is

known to cause cancer. The use of MC thus leads to safer manufacturing of the gas generant products. Even further, by using component (b) as well (e.g., BCN), the present invention achieves a low amount of heat from combustion as well as a cleaner gas. These advantages by using MC are not described or suggested in any of the cited references.

Reconsideration and withdrawal of all § 103(a) rejections are respectfully requested as unexpected results for the present invention rebut any asserted *prima facie* case of obviousness.

New Claim 31

New claim 31 is directed to an air bag inflator having a gas generating composition of claim 1.

As explained above, claim 1 is patentable. Thus, claim 31, which has the same features as claim 1, is also patentable.

Withdrawn Subject Matter

Applicants note paragraphs 1-2 at page 2 of the Office Action of April 25, 2006. Applicants respectfully submit that should allowable subject matter be found, other subject matter/species should be considered and rejoined with the allowable subject matter. This is because when a gas generant composition containing the melamine cyanurate (MC) as a fuel is found novel and unobvious, the same gas generating composition having any additional ingredient should also be novel and unobvious, and thus found allowable.

**CONCLUSION**

Based upon the amendments and remarks presented herein, the Examiner is respectfully requested to issue a Notice of Allowance clearly indicating that each of the pending claims are allowed under the provisions of Title 35 of the United States Code.

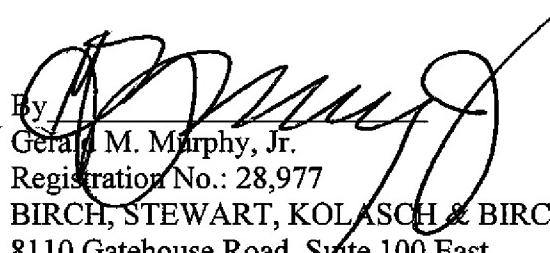
Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Gerald M. Murphy, Jr. (Reg. No. 28,977) at the telephone number below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

Dated:

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Respectfully submitted,

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